Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A video image motion estimation apparatus including a processing element block for receiving a reference data and a current data to obtain a motion vector in which a sum of absolute difference between the two input values is minimized, and a comparator, comprising:

a down sampling means for down-sampling said reference data and said current data, ~~and~~

~~a memory for respectively storing said down-sampled reference data and current data and then providing said data to said processing element block.~~

a demultiplexer for separating an even column data and an odd column data of the down-sampled reference data,

an even column memory for storing even column data and providing the even column data to the processing element block,

an odd column memory for storing odd column data and providing the odd column data to the processing element block, and

a current memory for storing current data and providing the current data to the processing element block,

wherein the processing element block comprises a number of processing elements, each processing element receiving the even column data, the odd number data, and the current data simultaneously and connected with each other with a systolic array structure,

wherein said even column memory and said odd column memory each are divided into n number of column blocks (n being a natural number over 2), a reference data corresponding to 1/n among the column data are sequentially written into each of said column blocks per motion estimation, wherein the reference data in the column block firstly written is

updated with a new column data, and the reference data stored in each of the column blocks in the memory are sequentially read in the order in which they were written, and then provided to the processing element block.

2. (Original) The motion estimation apparatus according to claim 1, wherein said down sampling means performs a down sampling operation by 2:1 by selecting only lower n/2 bits among n (a multiple of 2) bit input data.

3. (Original) The motion estimation apparatus according to claim 1, wherein a means for down-sampling said reference data and a means for down-sampling a current data are individually separated.

4.-6. (Canceled).

7. (Currently Amended) A video image motion estimation method in a motion estimation apparatus including a processing element block for receiving a reference data and a current data to obtain a motion vector in which a sum of absolute difference between the two input values is minimized, and a comparator, comprising the steps of:

~~a down sampling step of~~ down-sampling said reference data and said current data, ~~and~~

~~a memory step of respectively storing said down-sampled reference data and current data and then providing said data to said processing element block.~~

separating an even column data and an odd column data of the down-sampled reference data,

respectively storing the even column data, the odd column data, and the current data to a separate memory, and

providing the even column data, the odd column data, and the current data stored in the separate memory to the processing element block, and

wherein the storing step including the steps of: dividing the memory for storing the even column data and the odd column data into n number of column blocks (n is a natural number over 2) and sequentially writes a reference data corresponding to 1/n among the column data per a motion estimation into each of said column blocks, wherein the reference data in the column block firstly written is updated with a new column data, wherein the reference data stored in each of the column blocks in said memory is sequentially read in the order in which they were written, and then provided to said processing element block.

8. (Original) The video image motion estimation method according to claim 7, wherein said down sampling step performs a down sampling operation by 2:1 by selecting only lower n/2 bits among n (a multiple of 2) bit input data.

9. (Original) The video image motion estimation method according to claim 7, wherein the down sampling of said reference data and the down sampling of said current data are individually performed.

10.-12. (Canceled).